

FLUID COUPLER

ABSTRACT OF THE DISCLOSURE

A fluid coupler has a female coupler member and a male coupler member which can be connected to the female coupler member by simply inserting into the female coupler member. The female coupler member includes a first locking ball, a second locking ball and a locking ball confining ring. The confining ring has a first slanted inner surface engaging the first locking ball to partly project the first locking ball into a male coupler member receiving hole of the female coupler. The confining ring further has a second slanted inner surface and a locking ball pressing surface extending in parallel with an axis of the male receiving hole. In an insertion operation, the male coupler member first engages the first locking ball to press it against the first slanted surface, thereby axially moving the confining ring. This movement of the ring disengages the locking ball pressing surface from the second locking ball so that the second locking ball is forced by the male coupler member against the second slanted surface to move the confining ring. Upon completion of the insertion of the male coupler member, a recess formed in the outer surface of the male coupler member is radially aligned with the first and second locking balls which have been moved radially outwardly and, then, receives these locking balls thereinto, whereby the locking ball confining ring returns to its initial position wherein the first slanted surface and the locking ball pressing surface engage the first locking ball and second locking ball, respectively. Accordingly, even if an excessive pulling force is applied to the male coupler member, the locking ball pressing surface prevents the second locking ball from being moved radially to thereby positively retain the male coupler member in the female coupler member.